CHAPTER THREE

ASSESSMENT METHODOLOGY AND SUMMARY DATA

ASSESSMENT METHODOLOGY

The assessment methodology is discussed in detail in the Preface to this report.

Planning for the 305(b) Report began in 1996. At that time the emphasis had shifted from individual waterbody assessments to a watershed approach, and from a two year cycle to a five year cycle. CWB committed early to the schedule by selecting the Ala Wai Watershed as its pilot watershed. The time frame was one year. By the end of 1997, the reporting cycle reverted back to a two year period necessitating an overhaul of the assessment approach.

Meanwhile, EPO had begun a study to identify the most impaired streams in the state. The study invited input from all interested parties including several public forums. The effort was spearheaded by Adrian Palomino and Gary Wolinsky of EPA Region IX. CWB had discussed the assessment of the streams for WBS and the 305(b) Report with the project coordinator, and he was willing to do them. However, by the end of the project, no assessments were completed. CWB therefore had no other option except to complete its own assessments.

Since it was already the end of the reporting cycle, it was decided to concentrate on the Ala Wai Watershed and the most impaired streams identified by the Palomino/Wolinsky team. CWB followed this plan until February 1998 when the assessment of all 376 perennial streams became required. These streams were originally identified by the *Hawaii Stream Assessment* which was summarized in the 1994 305(b) report.

The substantial number of assessments combined with the shortened time frame made completion of all the assessments difficult and therefore, the figures in the assessment tables are not complete. However, updates to the WBS database will continue beyond the issuance of

this report.

CWB staff followed the WBS instruction manual to the maximum extent practicable in completing the assessments.

TYPES OF INFORMATION/DATA SOURCES

Since CWB has limited water quality data for the streams, the assessments were mainly based on information collected by others. This included the assessment documentation of Palomino and Wolinsky, data from the *Hawaii Stream Assessment*, site inspections and interviews of persons knowledgeable of the streams.

The coastal shorelines were not assessed in this reporting cycle. Data in the tables are from previous assessments. Note that the assessment dates for these waterbodies were changed to "9804" during a "repair" of the WBS database.

There were no assessments of lakes or wetlands.

ASSESSMENT CONFIDENCE LEVELS

The assessments conducted by CWB are general overviews based on available information. None are based on intensive or long term studies. Hence, the confidence levels of the assessments are of the simplest order.

USE SUPPORT DETERMINATIONS

All Use Support determinations were made by CWB.

EXTENT OF WATERBODY IMPAIRMENT

Since most of the waterbodies were assessed based on a single evaluation, the extent of an impact of a given impairment was based on observable evidence. If no evidence was available, then a conservative estimate was made based on best professional judgement. If no estimate could be made, the entire waterbody was assumed to be impaired.

Note: the data in the following chapters were provided by the WBS program. The measurements of a waterbody's length or area are approximations and therefore total lengths/sizes may not correspond exactly to lengths/sizes

provided by other agencies.

SECTION 303(d) WATERS

The following are the Water Quality Limited Segments as reported in previous 305(b) reports. Note that the WBS program being utilized for this 305(b) report did not allow for these waterbodies to remain intact as whole waterbodies and therefore the list of these waterbodies as reported by the WBS database is slightly different from the list below. The areas being addressed are the same as before to the maximum extent practicable.

Ala Wai Canal (Oahu)
Hanapepe Bay (Kauai)
Hilo Bay (Hawaii)
Honolulu Harbor (Oahu)
Kahana Bay (Oahu)
Kahului Bay (Maui)
Kaneohe Bay (Oahu)
Keehi Lagoon (Oahu)
Kewalo Basin (Oahu)
Nawiliwili Bay (Kauai)
Pearl Harbor (Oahu)
South Molokai (Molokai)
Waialua-Kaiaka Bays (Oahu)
Waimea Bay (Kauai)
West Maui (Lahaina to Kapalua, and Kihei) (Maui)

Further, 3 streams have been added to this list. They are:

Kapaa stream
Kawa stream
Waimanalo stream

Note: “Kapaa stream” includes a small stream and several drainage ditches and canals that enter Kawainui Marsh.

Maps of the Water Quality Limited Segments are presented in Appendix H at the end of this report.

CHAPTER FOUR
RIVERS AND STREAMS WATER QUALITY ASSESSMENT

TABLE 4-1: STATE 303(d) LIST OF WATERS NEEDING TMDLs

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	0900 - NUTRIENTS	1100-Nonirrigated Crop Production	L	N	0	0
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	-	4000-URBAN RUNOFF/STORM SEWERS	L	N	0	0
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	1700 - PATHOGENS	4000-URBAN RUNOFF/STORM SEWERS	L	N		
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	-	6500-Onsite Wastewater Systems (Septic Tanks)	L	N		
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	-	8600-NATURAL SOURCES	L	N		
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	2500 - TURBIDITY	1100-Nonirrigated Crop Production	L	N		
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	-	3200-Land Development	L	N		
HI-1210-1107	KOHALA - HAMAKUA COAST	1.70 Miles	-	8600-NATURAL SOURCES	L	N		
HI-189-165	PEARL HARBOR	10.33 Sq. Mi.	0900 - NUTRIENTS	8600-NATURAL SOURCES	M	Y	3	
HI-189-165	PEARL HARBOR	10.33 Sq. Mi.	1100 - SILTATION	8600-NATURAL SOURCES	M	Y	3	
HI-189-165	PEARL HARBOR	10.33 Sq. Mi.	2500 - TURBIDITY	8600-NATURAL SOURCES	M	Y	3	
HI-3-2-11	KAWA STREAM	3.00 Miles	0900 - NUTRIENTS	1000-AGRICULTURE	L	N	0	0
HI-3-2-11	KAWA STREAM	3.00 Miles	1100 - SILTATION	8600-NATURAL SOURCES	L	N	0	0

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI-3-2-11	KAWA STREAM	3.00 Miles	1700 - PATHOGENS	4300-Other Urban Runoff	L	N	0	0
HI-3-2-11	KAWA STREAM	3.00 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI-3-2-11	KAWA STREAM	3.00 Miles	2500 - TURBIDITY	4300-Other Urban Runoff	L	N	0	0
HI-3-2-11	KAWA STREAM	3.00 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI-3-2-11	KAWA STREAM	3.00 Miles	2600 - EXOTIC SPECIES	8950-Other	L	N	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	0900 - NUTRIENTS	1000-AGRICULTURE	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	-	1400-Pasture Land	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	-	1600-Animal Operations	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	1100 - SILTATION	8600-NATURAL SOURCES	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	1600 - OTHER HABITAT ALTERATIONS	7100-Channelization	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	-	7500-Bridge Construction	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	1700 - PATHOGENS	1000-AGRICULTURE	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	-	6000-LAND DISPOSAL	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	-	8600-NATURAL SOURCES	H	Y	0	0
HI-3-2-15	WAIMANALO STREAM	9.40 Miles	2600 - EXOTIC SPECIES	8950-Other	H	Y	0	0
HI-641-642	KAUNAKAKAI -KALAELOA	10.00 Miles	0900 - NUTRIENTS	1500-Range Land	L	N	0	
HI-641-642	KAUNAKAKAI -KALAELOA	10.00 Miles	2100 - SUSPENDED SOLIDS	1500-Range Land	L	N	0	
HI-641-642	KAUNAKAKAI -KALAELOA	10.00 Miles	2500 - TURBIDITY	1500-Range Land	L	N	0	

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI-641S-W	SOUTH MOLOKAI-WEST #1	7.80 Miles	0900 - NUTRIENTS	1500-Range Land	L	N	0	
HI-641S-W	SOUTH MOLOKAI-WEST #1	7.80 Miles	2100 - SUSPENDED SOLIDS	1500-Range Land	L	N	0	
HI-641S-W	SOUTH MOLOKAI-WEST #1	7.80 Miles	2500 - TURBIDITY	1500-Range Land	L	N	0	
HI-641S-W2	SOUTH MOLOKAI-WEST #2	8.00 Miles	0900 - NUTRIENTS	1500-Range Land	L	N	0	
HI-641S-W2	SOUTH MOLOKAI-WEST #2	8.00 Miles	2100 - SUSPENDED SOLIDS	1500-Range Land	L	N	0	
HI-641S-W2	SOUTH MOLOKAI-WEST #2	8.00 Miles	2500 - TURBIDITY	1500-Range Land	L	N	0	
HI-641S-W3	SOUTH MOLOKAI-WEST #3	3.50 Miles	0900 - NUTRIENTS	1500-Range Land	L	N	0	
HI-641S-W3	SOUTH MOLOKAI-WEST #3	3.50 Miles	2100 - SUSPENDED SOLIDS	1500-Range Land	L	N	0	
HI-641S-W3	SOUTH MOLOKAI-WEST #3	3.50 Miles	2500 - TURBIDITY	1500-Range Land	L	N	0	
HI-642S-E	SOUTHEAST MOLOKAI	10.00 Miles	0900 - NUTRIENTS	1500-Range Land	L	N	0	
HI-642S-E	SOUTHEAST MOLOKAI	10.00 Miles	2100 - SUSPENDED SOLIDS	1500-Range Land	L	N	0	
HI-642S-E	SOUTHEAST MOLOKAI	10.00 Miles	2500 - TURBIDITY	1500-Range Land	L	N	0	
HI-808-823	HANAPEPE SALT POND - WAIMEA BAY BEACH	2.20 Miles	0900 - NUTRIENTS	0120-Minor Industrial Point Source	L	N	0	0
HI-808-823	HANAPEPE SALT POND - WAIMEA BAY BEACH	2.20 Miles	-	1200-Irrigated Crop Production	L	N	0	0
HI000170	KAIAKA BAY	0.08 Sq. Mi.	-	0110-Major Industrial Point Source	L	N	1	0

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI000170	KAIAKA BAY	0.08 Sq. Mi.	-	1200-Irrigated Crop Production	L	N	1	0
HI000170	KAIAKA BAY	0.08 Sq. Mi.	-	1300-Specialty Crop Production	L	N	1	0
HI000170	KAIAKA BAY	0.08 Sq. Mi.	2500 - TURBIDITY	0110-Major Industrial Point Source	L	N	1	
HI000171	HALEIWA BEACH PARK	0.12 Sq. Mi.	0900 - NUTRIENTS	1100-Nonirrigated Crop Production	L	N	0	0
HI000171	HALEIWA BEACH PARK	0.12 Sq. Mi.	-	8600-NATURAL SOURCES	L	N	0	0
HI000171	HALEIWA BEACH PARK	0.12 Sq. Mi.	-	9000-SOURCE UNKNOWN	L	N	0	0
HI000178	KAHANA BAY	1.30 Sq. Mi.	1100 - SILTATION	4300-Other Urban Runoff	L	N	0	0
HI000178	KAHANA BAY	1.30 Sq. Mi.	-	8600-NATURAL SOURCES	L	N	0	0
HI000178	KAHANA BAY	1.30 Sq. Mi.	-	8700-Recreational Activities	L	N	0	0
HI000178	KAHANA BAY	1.30 Sq. Mi.	2100 - SUSPENDED SOLIDS	4300-Other Urban Runoff	L	N	0	0
HI000178	KAHANA BAY	1.30 Sq. Mi.	-	8600-NATURAL SOURCES	L	N	0	0
HI000178	KAHANA BAY	1.30 Sq. Mi.	-	8700-Recreational Activities	L	N	0	0
HI000190	KANEOHE BEACH PARK	0.20 Sq. Mi.	0910 - Nitrogen	4000-URBAN RUNOFF/STORM SEWERS	M	Y	0	
HI000190	KANEOHE BEACH PARK	0.20 Sq. Mi.	-	8600-NATURAL SOURCES	M	Y	0	
HI000190	KANEOHE BEACH PARK	0.20 Sq. Mi.	0920 - Phosphorus	4000-URBAN RUNOFF/STORM SEWERS	M	Y	0	
HI000190	KANEOHE BEACH PARK	0.20 Sq. Mi.	-	8600-NATURAL SOURCES	M	Y	0	
HI000190	KANEOHE BEACH PARK	0.20 Sq. Mi.	2100 - SUSPENDED SOLIDS	4000-URBAN RUNOFF/STORM SEWERS	M	Y	0	
HI000190	KANEOHE BEACH PARK	0.20 Sq. Mi.	-	8600-NATURAL SOURCES	M	Y	0	

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	0200 - PESTICIDES	4300-Other Urban Runoff	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	0500 - METALS	4000-URBAN RUNOFF/STORM SEWERS	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	4300-Other Urban Runoff	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	8100-Atmospheric Deposition	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	0506 - Lead	4300-Other Urban Runoff	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	0900 - NUTRIENTS	4000-URBAN RUNOFF/STORM SEWERS	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	4300-Other Urban Runoff	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	8600-NATURAL SOURCES	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	0910 - Nitrogen	4300-Other Urban Runoff	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	8600-NATURAL SOURCES	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	0920 - Phosphorus	4300-Other Urban Runoff	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	8600-NATURAL SOURCES	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	1100 - SILTATION	8600-NATURAL SOURCES	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	1700 - PATHOGENS	4300-Other Urban Runoff	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	8600-NATURAL SOURCES	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	2500 - TURBIDITY	4000-URBAN RUNOFF/STORM SEWERS	H	Y	0	
HI000320	ALA WAI CANAL	0.02 Sq. Mi.	-	8600-NATURAL SOURCES	H	Y	0	
HI000342	KEEHI LAGOON	5.55 Sq. Mi.	1100 - SILTATION	8600-NATURAL SOURCES	M	Y	0	
HI000342	KEEHI LAGOON	5.55 Sq. Mi.	2100 - SUSPENDED SOLIDS	8600-NATURAL SOURCES	M	Y	0	

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI000342	KEEHI LAGOON	5.55 Sq. Mi.	2500 - TURBIDITY	8600-NATURAL SOURCES	M	Y	0	
HI000361A	KEWALO BASIN	0.80 Sq. Mi.	0910 - Nitrogen	3000-CONSTRUCTION	M	Y	0	
HI000361A	KEWALO BASIN	0.80 Sq. Mi.	-	8600-NATURAL SOURCES	M	Y	0	
HI000380	HONOLULU HARBOR	2.74 Sq. Mi.	0900 - NUTRIENTS	8600-NATURAL SOURCES	M	Y	1	
HI000380	HONOLULU HARBOR	2.74 Sq. Mi.	1100 - SILTATION	8600-NATURAL SOURCES	M	Y	1	
HI000380	HONOLULU HARBOR	2.74 Sq. Mi.	2500 - TURBIDITY	8600-NATURAL SOURCES	M	Y	1	
HI000641	KAUNAKAKAI	0.02 Sq. Mi.	0900 - NUTRIENTS	1500-Range Land	L	N	1	
HI000641	KAUNAKAKAI	0.02 Sq. Mi.	2100 - SUSPENDED SOLIDS	1500-Range Land	L	N	1	
HI000641	KAUNAKAKAI	0.02 Sq. Mi.	2500 - TURBIDITY	1500-Range Land	L	N	1	
HI000642	KALAELOA (KAMALO HARBOR)	0.02 Sq. Mi.	0900 - NUTRIENTS	1500-Range Land	L	N	0	
HI000642	KALAELOA (KAMALO HARBOR)	0.02 Sq. Mi.	2100 - SUSPENDED SOLIDS	1500-Range Land	L	N	0	
HI000642	KALAELOA (KAMALO HARBOR)	0.02 Sq. Mi.	2500 - TURBIDITY	1500-Range Land	L	N	0	
HI000650	KAPALUA	3.00 Miles	-	1200-Irrigated Crop Production	L	N	0	0
HI000650	KAPALUA	3.00 Miles	-	4300-Other Urban Runoff	L	N	0	0
HI000650	KAPALUA	3.00 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000657	LAHAINA SHORELINE	1.30 Miles	-	4300-Other Urban Runoff	L	N	0	0
HI000657	LAHAINA SHORELINE	1.30 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000660	MAHINAHINA	1.80 Miles	-	1200-Irrigated Crop Production	L	N	0	0
HI000660	MAHINAHINA	1.80 Miles	-	4300-Other Urban Runoff	L	N	0	0

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI000660	MAHINAHINA	1.80 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000662	MALA SHORELINE	1.10 Miles	-	7700-Streambank Modification/ Destabilization	L	N	0	0
HI000662	MALA SHORELINE	1.10 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000666	KAANAPALI BEACH	2.60 Miles	-	4300-Other Urban Runoff	L	N	0	0
HI000666	KAANAPALI BEACH	2.60 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000674	D.T. FLEMING BEACH	2.80 Miles	-	4300-Other Urban Runoff	L	N	0	0
HI000674	D.T. FLEMING BEACH	2.80 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000676	KIHEI SHORELINE	2.40 Miles	-	4300-Other Urban Runoff	L	N	0	0
HI000676	KIHEI SHORELINE	2.40 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000678	WAHIKULI	1.80 Miles	-	4300-Other Urban Runoff	L	N	0	0
HI000678	WAHIKULI	1.80 Miles	-	8600-NATURAL SOURCES	L	N	0	0
HI000680	KAHULUI HARBOR	0.56 Sq. Mi.	-	4300-Other Urban Runoff	L	N		
HI000680	KAHULUI HARBOR	0.56 Sq. Mi.	-	8600-NATURAL SOURCES	L	N		
HI000687	MAALAEA BAY	0.30 Miles	1700 - PATHOGENS	0230-Package Plants (Small Flows)	L	N	0	0
HI000687	MAALAEA BAY	0.30 Miles	-	4300-Other Urban Runoff	L	N	0	0
HI000687	MAALAEA BAY	0.30 Miles	-	8400-Spills	L	N	0	0
HI000808	HANAPEPE SALT POND	0.60 Miles	0900 - NUTRIENTS	0120-Minor Industrial Point Source	L	N	0	0
HI000808	HANAPEPE SALT POND	0.60 Miles	-	1200-Irrigated Crop Production	L	N	0	0
HI000814	KEKAHA (OOMANA POINT)	1.10 Miles	-	1000-AGRICULTURE	L	N	0	0

WBID	WB NAME	SIZE OF WB AFFECTED	SPECIFIC POLLUTANT OR STRESSOR	PROBABLE SOURCE(S) OF POLLUTANT	PRIORITY FOR TMDL (H/M/L/U)	TARGETED FOR TMDL (Y/N)	NO. OF NPDES PERMIT RENEWALS	NO. OF NPS PROJECTS
HI000817	NAWILIWILI HARBOR	0.52 Sq. Mi.	2500 - TURBIDITY	7200-Dredging	L	N	0	0
HI000817	NAWILIWILI HARBOR	0.52 Sq. Mi.	-	8600-NATURAL SOURCES	L	N	0	0
HI000821	PORT ALLEN PIER	0.30 Sq. Mi.	0500 - METALS	9000-SOURCE UNKNOWN	L	N	2	0
HI000823	WAIMEA BAY BEACH	1.15 Miles	-	9000-SOURCE UNKNOWN	L	N	0	0
HI000840	WAIMEA BAY LANDING	1.30 Miles	-	9000-SOURCE UNKNOWN	L	N	0	0
HI000840	WAIMEA BAY LANDING	1.30 Miles	0900 - NUTRIENTS	1200-Irrigated Crop Production	L	N	0	0
HI001141	HILO BAY	2.70 Sq. Mi.	2500 - TURBIDITY	1100-Nonirrigated Crop Production	L	N	0	0
HI001141	HILO BAY	2.70 Sq. Mi.	-	3200-Land Development	L	N	0	0
HI001141	HILO BAY	2.70 Sq. Mi.	-	8600-NATURAL SOURCES	L	N	0	0
HI_C1_000402	KANEOHE BAY - NORTH/ CENTRAL	1.18 Sq. Mi.	1100 - SILTATION	1000-AGRICULTURE	M	Y	0	
HI_C1_000402	KANEOHE BAY - NORTH/ CENTRAL	1.18 Sq. Mi.	-	4000-URBAN RUNOFF/STORM SEWERS	M	Y	0	
HI_C1_000402	KANEOHE BAY - NORTH/ CENTRAL	1.18 Sq. Mi.	-	7100-Channelization	M	Y	0	
HI_C1_000402	KANEOHE BAY - NORTH/ CENTRAL	1.18 Sq. Mi.	-	7400-Flow Regulation/ Modification	M	Y	0	
HI_C1_000402	KANEOHE BAY - NORTH/ CENTRAL	1.18 Sq. Mi.	-	8600-NATURAL SOURCES	M	Y	0	

WB = Waterbody
WBID =Waterbody identification number from 305(b) assessment database
H/M/L/U = High/Medium/Low/Unknown or Unspecified
Targeted = Waterbody has been identified by State for TMDL development during the April 1998 to April 2000 cycle.
NPDES = National Pollutant Discharge Elimination System

DESIGNATED USE

The summaries of the designated use support in rivers and

SUPPORT

streams are listed below in the following Tables 4-2A and 4-3A. Table 4-2A combines the degrees of use support into an overall assessment. Table 4-3A shows the degree of use support for each of the various uses. The data in the tables are exactly as reported by the WBS report generating program.

TABLE 4-2A: SUMMARY OF FULLY SUPPORTING, THREATENED AND IMPAIRED WATERS

Type of Waterbody: Rivers and Streams (Reported in Miles)

DEGREE OF USE SUPPORT	ASSESSMENT CATEGORY		TOTAL ASSESSED SIZE
	EVALUATED	MONITORED	
SIZE FULLY SUPPORTING ALL *ASSESSED* USES	1194.16	6.45	1200.61
SIZE FULLY SUPPORTING ALL *ASSESSED* USES, BUT THREATENED[a] FOR AT LEAST ONE USE	0.00	0.00	0.00
SIZE IMPAIRED[b] FOR ONE OR MORE USES	2604.29	99.77	2704.06
SIZE NOT ATTAINABLE FOR ANY USE AND NOT INCLUDED IN THE LINE ITEMS ABOVE	0.00	0.00	0.00
TOTAL ASSESSED	3798.45	106.22	3904.67

[a] Size threatened is a distinct category of waters and is NOT a subset of the size fully supporting uses. It is added into the totals in the bottom line.
[b] Impaired means partially or not supporting a designated use.

TABLE 4-3A: INDIVIDUAL USE SUPPORT SUMMARY

Type of Waterbody: Rivers and Streams (Reported in Miles)

GOALS	USE	SIZE ASSESSED	SIZE FULLY SUPPORTING	SIZE SUPPORTING, BUT THREAT-ENED	SIZE PARTIALLY SUPPORTING	SIZE NOT SUPPORTING	SIZE NOT ATTAINABLE	SIZE NOT ASSESSED
	OVERALL	3865.47	1289.50	0.00	657.92	1918.05	0.00	0.00
PROTECT & ENHANCE ECOSYSTEM	AQUATIC LIFE	3904.55	1565.91	0.00	0.00	2338.64	0.00	0.00
PROTECT & ENHANCE PUBLIC HEALTH	FISH CONSUMPTION	3891.85	3878.41	0.00	0.00	13.44	0.00	0.00
	SHELLFISHING	3904.55	3903.95	0.00	0.00	0.60	0.00	0.00
	SWIMMING	3897.81	3897.21	0.00	0.00	0.60	0.00	0.00
	SECONDARY CONTACT	3904.55	3903.95	0.00	0.00	0.60	0.00	0.00
	DRINKING WATER	3889.23	3888.63	0.00	0.00	0.60	0.00	0.00
SOCIAL & ECONOMIC	NON-DEGREDATION	3904.67	1610.75	0.00	69.44	2224.48	0.00	0.00
	AESTHETICS	3880.77	3857.04	0.00	0.00	23.73	0.00	0.00
	AGRICULTURE	3904.55	3903.95	0.00	0.00	0.60	0.00	0.00
	CULTURAL OR CEREMONIAL	3904.55	3903.95	0.00	0.00	0.60	0.00	0.00

*Category not applicable.
- Category applicable, no data available.
0 Category applicable, size of waters is zero.

The individual use support summary table lists the specific designated uses and combines Clean Water Act reporting and designated use reporting. The fishable goal of the Clean Water Act is reported under the Fish Consumption, Shellfishing, and Aquatic Life Support Uses, and the swimmable goal is reported under the Swimming and Secondary Contact Uses. The WBS was used to generate this table.

CAUSES/STRESSORS AND SOURCES OF IMPAIRMENT OF DESIGNATED USES

For those waters which were assessed and were not fully supporting their designated uses (i.e. partially and not supporting uses), the following information is being provided to illustrate the causes/stressors and sources of use impairment statewide.

RELATIVE ASSESSMENT OF CAUSES/STRESSORS

Causes are those pollutants or other stressors that contribute to the actual or threatened impairment of designated uses in a waterbody. Stressors are factors or conditions (other than specific pollutants) that cause impairment (e.g. flow and other habitat alterations, presence of exotic species). The following table provides the total size (in miles) of rivers and streams affected by each cause category. A waterbody which is affected by several different causes will have its size counted separately in each relevant cause category. If the relative contribution of the cause is listed in the waterbody-specific information as "High", the size of the waterbody with less than full support is included in the "Major Contribution" column. If the contribution is listed as "Moderate" or "Slight", the size is included in the "Moderate/Slight Contribution" column. (Note that WBS uses the terms "High", "Moderate" and "Slight" rather than "Major", "Moderate" and "Minor".)

The following table contains the full list of cause categories as stored in WBS. It is provided to increase the overall usefulness of this report and the WBS database. All of the data is reported verbatim as generated by the WBS report generating program.

TABLE 4-4A: TOTAL SIZES OF WATERS IMPAIRED BY VARIOUS CAUSE/STRESSOR CATEGORIES

Type of Waterbody: Rivers and Streams (Reported in Miles)

CAUSE/STRESSOR CATEGORY	SIZE OF WATERS BY CONTRIBUTION TO IMPAIRMENT	
	MAJOR	MODERATE/MINOR
CAUSE/STRESSOR UNKNOWN	-	-
UNKNOWN TOXICITY	4.00	0.00
PESTICIDES	0.00	147.20
PRIORITY ORGANICS	-	-
NONPRIORITY ORGANICS	-	-
PCBs	-	-
DIOXINS	-	-
METALS	0.00	5.00
AMMONIA	-	-
CYANIDE	-	-
SULFATES	-	-
CHLORINE	-	-
OTHER INORGANICS	-	-
NUTRIENTS	89.80	1414.51
pH	-	-
SILTATION	0.00	601.10
ORGANIC ENRICHMENT/LOW DO	1.00	0.00
SALINITY/TDS/CHLORIDES	-	-
THERMAL MODIFICATIONS	-	-
FLOW ALTERATIONS	88.41	148.89
OTHER HABITAT ALTERATIONS	3.36	266.86
PATHOGEN INDICATORS	0.00	1639.49
RADIATION	-	-
OIL AND GREASE	0.00	1.50
TASTE AND ODOR	-	-
SUSPENDED SOLIDS	0.00	23.90
NOXIOUS AQUATIC PLANTS (MACROPHYTES)	0.00	3.50
EXCESSIVE ALGAL GROWTH	-	-
TOTAL TOXICS	-	-
TURBIDITY	180.70	1353.08
EXOTIC SPECIES	156.08	1878.70
OTHER	-	-

*Category not applicable.
- Category applicable, no data available.
0 Category applicable, size of waters is zero.

The relative magnitude of causes does not necessarily

correspond to degree of use support. For example, a waterbody could have three causes labeled as moderate, but be sufficiently impaired from these multiple causes such that it is assessed as not supporting.

Most of the causes in the above table are self-explanatory, but the following warrant clarification.

Siltation - refers to the deposition of sediment on the bottom of a waterbody causing such impacts as the smothering of benthic habitats in streams or the filling in of lakes.

Thermal Modification - usually involves the heating of the receiving waters by a point source (e.g. plant cooling water) or nonpoint sources (e.g. runoff from pavement or elimination of bank shading).

Flow Alteration - refers to frequent changes in flow or chronic reductions in flow that impact aquatic life (e.g. as flow regulated rivers or a stream with extensive irrigation withdrawals).

Other Habitat Alterations - may include removal of woody debris or cobbles from a stream.

Exotic Species - introduced plants and animals that can interfere with natural fisheries, endangered species or other components of the ecosystem.

This table was generated from the waterbody-specific information in WBS.

RELATIVE ASSESSMENT OF SOURCES

Sources are the facilities or activities that contribute pollutants or stressors, resulting in impairment of designated uses in a waterbody. The total size (in miles) of rivers and streams affected by each category of source is provided in the following table, including the size with overall point and nonpoint source impacts. A waterbody which is affected by several sources of pollution has the appropriate size counted in each relevant source category. If the relative contribution of the source is listed in the waterbody-specific information as "High", the size with

less than full support should be included as a major contribution. If it is listed as "Moderate" or "Slight", the size should be included as a "Moderate/Minor" contribution.

The following table contains the full list of source categories as stored in WBS. It is provided to increase the overall usefulness of this report and the WBS database. All of the data is reported verbatim as generated by the WBS report generating program.

TABLE 4-5A: TOTAL SIZES OF WATERS IMPAIRED BY VARIOUS SOURCE CATEGORIES

Type of Waterbody: Rivers and Streams (Reported in Miles)

SOURCE CATEGORY	CONTRIBUTION TO IMPAIRMENT	
	MAJOR	MODERATE/MINOR
INDUSTRIAL POINT SOURCES	-	-
MUNICIPAL POINT SOURCES	0.00	18.70
COMBINED SEWER OVERFLOW	-	-
COLLECTION SYSTEM FAILURE	-	-
DOMESTIC WASTEWATER LAGOON	-	-
AGRICULTURE	21.32	716.66
CROP RELATED SOURCES	-	-
GRAZING RELATED SOURCES	-	-
INTENSIVE ANIMAL FEEDING OPERATIONS	-	-
SILVICULTURE	0.00	8.00
CONSTRUCTION	0.00	23.30
URBAN RUNOFF/STORM SEWERS	0.00	9.10
RESOURCE EXTRACTION	-	-
LAND DISPOSAL	0.00	9.40
HYDROMODIFICATION	0.00	10.00
HABITAT MODIFICATION (NON HYDDROMODIFICATION)	-	-
MARINAS AND RECREATIONAL BOATING	0.00	1.50
EROSION FROM DERELICT LAND	-	-
ATMOSPHERIC DEPOSITION	-	-

SOURCE CATEGORY	CONTRIBUTION TO IMPAIRMENT	
	MAJOR	MODERATE/MINOR
WASTE STORAGE/STORAGE TANK LEAKS	-	-
LEAKING UNDERGROUND STORAGE TANKS	-	-
HIGHWAY MAINTENANCE AND RUNOFF	-	-
SPILLS	-	-
CONTAMINATED SEDIMENTS[c]	-	-
DEBRIS AND BOTTOM DEPOSITS	-	-
INTERNAL NUTRIENT CYCLING (LAKES)	-	-
SEDIMENT RESUSPENSION	-	-
NATURAL SOURCES	67.37	1780.03
RECREATIONAL AND TOURISM ACTIVITIES	-	-
SALT STORAGE SITES	-	-
GROUNDWATER LOADINGS	-	-
GROUNDWATER WITHDRAWAL	-	-
OTHER	-	-
UNKNOWN SOURCE	-	-
SOURCES OUTSIDE STATE JURISDICTION/BORDERS	-	-

*Category not applicable.
- Category applicable, no data available.
0 Category applicable, size of waters is zero.

The information used to generate the above table is from the Source Size and Source Magnitude fields of the WBS database.

The causes and sources in the WBS were linked as much as possible utilizing the special link field provided for this purpose.

HAWAII'S STREAMS

The most comprehensive evaluation of Hawaii's streams was conducted in a cooperative project by the Department of Land and Natural Resources, the National Park Service and the University of Hawaii at Manoa. The resulting document, entitled the "Hawaii Stream Assessment" was sponsored by the Commission on Water Resource Management (CWRM) and released in December 1990. A summary of the assessment was included in the 1994 305(b) Report.

The work to protect streams continued beyond the publication of the *Hawaii Stream Assessment*, and resulted in the creation of the Stream Protection and Management (SPAM) Task Force in 1993. SPAM examined the issues that surrounded the streams and in April 1994, produced a report for CWRM which documented their recommendations and suggestions. Subsequently, CWRM staff produced a report of their recommendations based upon the SPAM report. Both of these documents are included in Appendix I.

CHAPTER FIVE

LAKES WATER QUALITY ASSESSMENT

There are no publicly owned, public access lakes which the State considers significant.

Based on the Hawaii Administrative Rules, Chapter 11-54, Water Quality Standards (1990), "natural lakes" are defined as deep bodies of standing water that are always fresh, and contained in well-defined natural basins. This type of waterbody is very uncommon in Hawaii. Natural lakes are maintained in their natural state through the "no discharge" policy, under the Clean Water Act. The following table lists all lakes in the State of Hawaii by island.

TABLE E: LIST OF LAKES AND LAKE-LIKE WATERS IN THE STATE OF HAWAII, BY ISLAND

Island	Lake	Elevation (feet)	Area (acre)	Max. Depth (feet)
Hawaii	Green Lake	3	2	20
	Lake Waiau	13,020	2	10
Maui	Waieleele Lake	6,680	0.5	21
Molokai	Meyer Lake	2,021	6 to 10	5
Oahu	Kaelepulu Pond	Sea level	196	Not available
Niihau	Hanalii Lake	Sea level	841 to 865	Not available
	Halulu Lake	Sea level	182 to 371	Not available

Source: J. A. Maclolek, Lakes and Lake like waters of the Hawaiian Archipelago (Bernice P. Bishop Museum, Occasional papers, Vol.XXV, No.1, April 30, 1982); Hawaii State DLNR, Division of Water and Land Development, May 23, 1990.

There are only seven natural lakes in Hawaii. These lakes support very limited native fauna. Due to their limited and distinctive nature, assessment under Section 314 (a)(2) of the Clean Water Act, as amended by the Water Quality Act of 1987 is not applicable for the purposes of the 305(b) report. Lake Waiau on the island of Hawaii, for example, is the highest lake in the United States. Green Lake is privately owned. Kaelepulu Pond is brackish and privately owned. Niihau is a privately owned island with no means of access.

DOH does not monitor or conduct sampling in any lakes or lakelike bodies of water, and no assessments were conducted of these waterbodies for this report.